

IoT technologies applied in Waste Management

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The continuous growth of population in many large cities, combined with the lack of proper waste management knowledge and ecological consciousness, has led to environmental and hygiene pollution. Images of overflowed trash bins has become common in overpopulated cities. Despite of the many areas where disposals can be placed, some areas are fully loaded whereas others are completely empty. This phenomenon leads to unnecessary management of waste collection vehicles, as there are unnecessary routes taken leading to wasted fuel consumption producing even higher CO₂ emissions. There are also issues with the selection of the appropriate disposal, as consumers don't separate recycled products from their trash and throw them in the same bag-trash bin. Even if that separation is done, there is still no assurance that the garbage will be thrown in the appropriate bin. In both of these cases materials which could be recycled are wasted in the landfills. As it can be ascertained, the existing waste management system is not adequate. This paper is an effort to examine the use of smart IoT systems in waste collection and sorting. The technologies used in smart systems will be presented and analyzed though their integration in management systems. The aim of this research is to prove the positive impact that the use of IoT will offer to the waste management as well as the environment with the CO₂ emissions reduction.



Fig. 1. IoT Management System for waste collection point



Fig. 2. Smart trash bin

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